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动物分类学报

TWO NEW SPECIES OF THE GENUS CARYANDA STÅL (ORTHOPTERA, ACRIDOIDEA) FROM YUNNAN PROVINCE, CHINA

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Abstract The new species of *Caryanda* (Orthoptera, Acridoidea) *C. yini* Mao *et* Ren, sp. nov. and *C. dentata* Mao *et* Ou, sp. nov. are described from Yunnan, China. All specimens are deposited in the College of Life Sciences and Chemistry, Dali University (CLDU), Yunnan Province, China.

Key words Orthoptera, Catantopidae, *Caryanda*, new species, China.

The genus *Caryanda* was erected by Stål in 1878. So far, nearly 65 species are known in the world (Huo *et al*., 1999; Fu *et* Sun, 2002; Storozhenko, 2005; Zheng *et* Zhong, 2005; Otte *et al*., 2006; Li *et* Xia, 2006), of them 50 species have been reported from China.

In this paper we describe two new species of *Caryanda* from Yunnan, China and describe the male of *Caryanda dehongensis* Mao, Xu *et* Yang, 2003.

Caryanda dehongensis **Mao, Xu** et **Yang, 2003** (Figs. 1-6)

Caryanda dehongensis Mao, Xu *et* Yang, 2003: 172-174, Figs 1-4. Otte *et al*., 2006.

Distribution. China, Yunnan.

Material examined: 2 ♂♂, 4 ♀♀ (paratypes, CLDU).

The phallic complex of this species was not described and is described here. Epiphallus with large, outward oblique, hook-like outer lophi projecting in a 90° angle from bridge and rounded inner lophi; anchorae compressed, with apex obtuse; anterior projections incurved, posterior sides rounded in lateral view; bridge distinctly divided in middle (Figs. 1-3). Oval sclerites present (Figs. 1-2). Phallic complex with basal penis valves expanded in dorsal view, apical penis valves expanded, apex oval; valves of cingulum divided apically, distinctly paired present behind apical valves of penis (Figs. 4-6).

Caryanda yini **Mao** et **Ren, sp. nov.** (Figs. 7-20)

Body small. Head wider than pronotum (Fig. 7). Fastigium broad, slightly concave in dorsal view, width in front of eyes about 2.9-3.1 (♂) or 2.6 (♀) times larger than length. Frons oblique; frontal ridge with low longitudinal sulcus in whole length; lateral margins nearly parallel, somewhat raised. Lateral facial keels straight. Antennae filiform, reaching coxa of hind leg (♂) or posterior margin of pronotum (♀), length of median segment about 2.9-3.6 (♂) or 2.1-2.4 (♀) times as long as its width. Eyes long oval, longitudinal diameter about 1.4-1.5 times as long as horizontal diameter in both sexes, and about 2.3-2.8 (♂) or 2.2-2.3 (♀) times longer than length of subocular furrow. Pronotum nearly cylindrical, anterior margin nearly straight, posterior margin with a shallow breach; median carina indistinct, lateral carinae absent; three transverse sulci distinctly intersecting median carina; length of prozona 2.6-2.8 times as long as that of metazona in both sexes. Prosternal spine long conical, straight, weakly compressed, apex subobtuse. Mesosternal interspace about 1.6 (♂) or 1.5 (♀) times longer than minimum width; mesosteral lobes 1.3 (♂) or 1.8 (♀) times wider than long; metasternal lobes contiguous (♂) or separate (♀). Tegmina narrow scale-like, length 3.2-3.4 (♂) or 2.9 (♀) times larger than maximum width, reaching at (♀) or surpassing beyond (♂) posterior margin of 1st abdominal tergite. Hind femur with upper carina smooth, terminating in an acute angle; apex of lower knee lobes spinous. Hind tibia with apical half nearly cylindrical, with 8 external and 10 internal spines on dorsal side; external apical spine present. Abdomen with median carina. Tympana opening distinct, oval.

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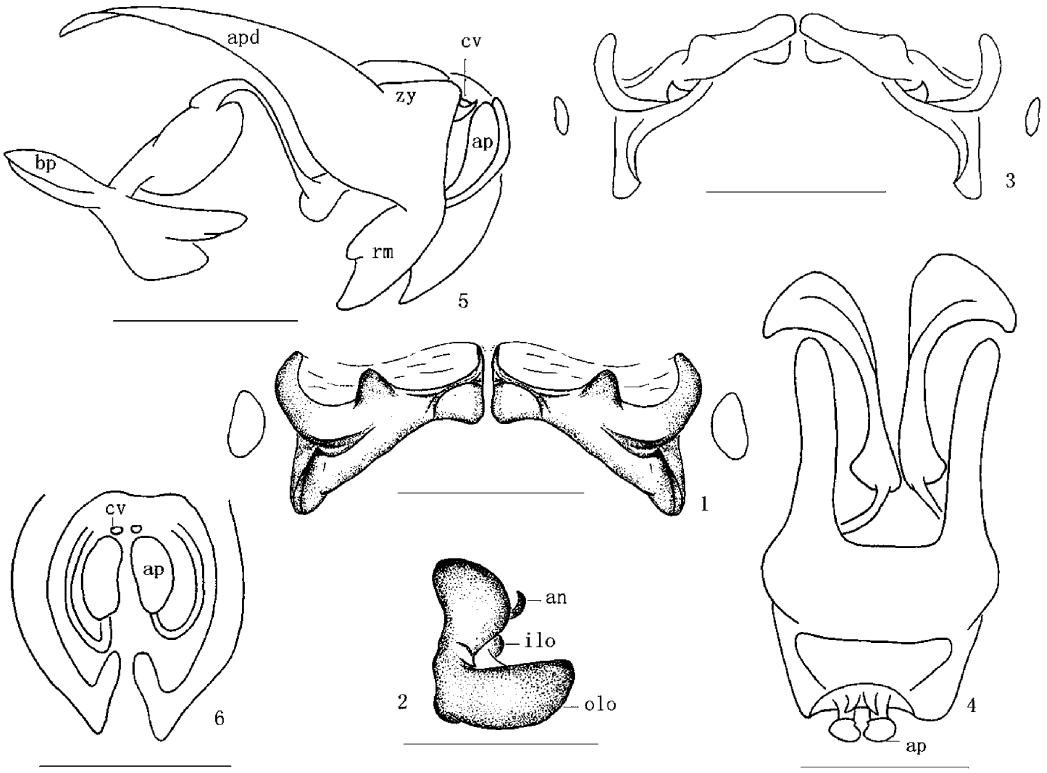


Figs. 1-6. *Caryanda dehongensis* Mao, Xu *et* Yang, 2003. 1-3. Epiphallus, dorsal, lateral, and anterior views. 4-6. Phallic complex, dorsal, lateral, and apical views. (an, ancora. ap, apical penis valves. apd, apodeme. bp, basal penis valves. br, bridge. cv, valves of cingulum. ilo, inner lophus. olo, outer lophus. rm, rami of cingulum. zy, zygoma). Scale bars= 1 mm.

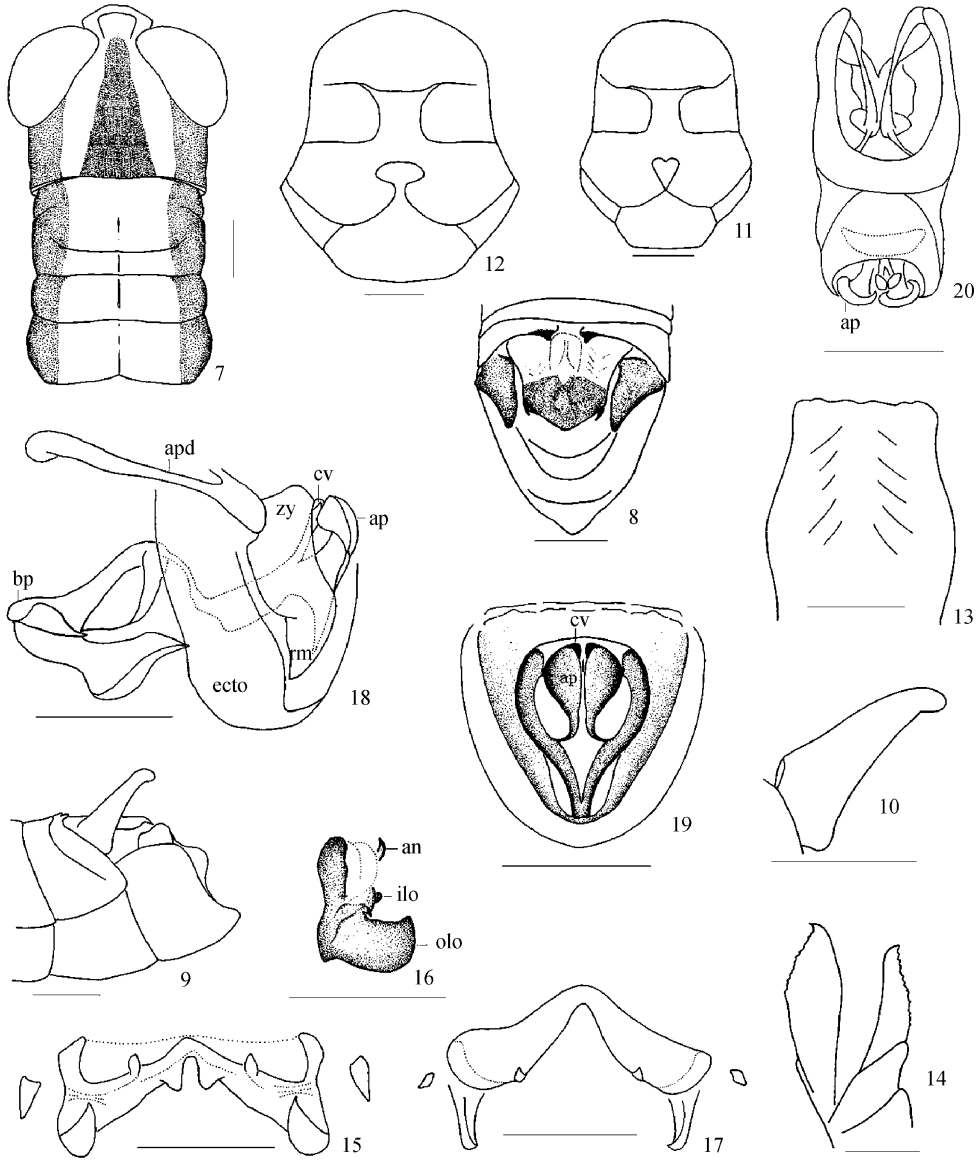
Male 10th abdominal tergite distinctly excised in middle, posterior margin with small furculae. Supra anal plate scutated, basal half with broad median longitudinal sulcus; lateral areas a little concave; lateral margins raised, incurved in middle; posterior margin obtuse angular with two spine-like processes in lateral sides (Fig. 8). Cerci long conical, somewhat laterally compressed, pointing post-dorsad; apex downwards curvate, obtuse, surpassing apex of supra anal plate (Figs. 8-9); inner sides with 2-3 obtuse dentiform processes. Subgenital plate short conical, apex subacute. Epiphallus with two pairs of lophi, outer lophi hook-like projecting in a 90° angle from bridge, apex acute; inner lophi rounded; anchorae compressed, apex obtuse; anterior projections incurved, posterior sides nearly straight in lateral view; bridge partly divided in middle. Phallic complex with apical penis valves expanded, apex oval; cingular valves divided apically, paired present behind apical valves of penis (Figs. 15-20).

Female subgenital plate with mediate longitudinal concave at apical half, posterior margin undulated, with a triangular flap in middle (Fig. 13). Valves of ovipositor with dentes along margins (Fig. 14).

Coloration. Frons and frontal ridge yellowish green, with or without some small black spots. Genae yellowish green with an oblique black stroke below eyes. Head green, with or without a black longitudinal band in middle. Antennae brown, darker towards apex. Eyes brown or brownish red. Postocular bands black (♂) or brown (♀), continued on dorsal area of lateral lobes of pronotum, tegmina and 5th abdominal tergite. Pronotum with disc green; lateral lobes with two yellow maculations, inferior margins black. Tegmina black (♂) or brownish red (♀). Hind femora greenish yellow, with broad orange ring before knee; knee black; hind tibiae blue. Abdominal tergites darkish green; abdominal sternites and terminalia yellow. Furculae (♂) and cerci (♂) black; supra anal plate yellow, with apical half black (♂).

Length of body: ♂17.6-18.4 mm, ♀ 20.5-21.0 mm. Length of pronotum: ♂3.3-3.5 mm, ♀ 3.9 mm. Length of tegmen: ♂2.6-2.9 mm, ♀ 3.7-4.0 mm. Length of hind femur: ♂9.6-10.5 mm, ♀ 11.8-12.0 mm.

Holotype ♂, Yunnan, Ruili, Mengxiu (24°4′ N, 97°49′ E), 3 Aug. 2005, coll. XU Ji-Shan (CLDU). Paratypes 6 ♂♂, 3 ♀♀, coll. PU Hai-Bo (CLDU),



Figs 7-20. *Caryanda yini* Mao *et* Ren, sp. nov. 7. Male head and pronotum, dorsal view. 8-9. Male terminalia, dorsal, and lateral views. 10. Male circus, lateral view. 11-12. Mesosternum and metasternum, male, and female. 13. Female subgenital plate, ventral view. 14. Valves of ovipositor, lateral view. 15-17. Epiphallus, dorsal, lateral, and anterior views. 18-20. Phallic complex, lateral, apical, and dorsal views. (an, ancora. ap, apical penis valves. apd, apodeme. bp, basal penis valves. cv, valves of cingulum. ecto, ectophallus. ilo, inner lophus. olo, outer lophus. rm, rami of cingulum. zy, zygoma). Scale bars= 1 mm.

other data same as holotype; 4 ♂♂, Yunnan, Mt. Gaoligong (25°10′N, 98°42′E), 7 Aug. 2005, coll. MAO Ben-Yong (CLDU).

Etymology. The new species is named after Prof. YIN Xiang-Chu for his outstanding contributions in the field of insect taxonomy.

Remarks. The new species is similar to *Caryanda dehongensis* Mao, Xu *et* Yang, 2003, but can be separated by characters listed in Table 1.

Caryanda dentata **Mao** et **Ou, sp. nov.** (Figs. 21-31)

Body small. Vertex convex, weakly concave in dorsal view, width in front of eyes about 2.4-2.5 (♂) or 2.5-3.1 (♀) times larger than length. Frons oblique; frontal ridge with low longitudinal sulcus in whole length; lateral margins nearly parallel, somewhat raised. Antennae filiform, reaching coxa of hind leg (♂) or posterior margin of pronotum (♀), length of median segment about 2.2-2.7 (♂) or 2.0-2.4 (♀) times as long as its width. Eyes long oval,

longitudinal diameter about 1.5 (♂) or 1.6-1.7 (♀) times as long as horizontal diameter, and about 2.5 (♂) or 1.8-2.1 (♀) times longer than length of subocular furrow. Pronotum nearly cylindrical, slightly contractive in middle, anterior margin nearly straight, posterior margin with a shallow breach; median carina indistinct, lateral carinae absent; three transverse sulci distinctly intersecting median carina; length of prozona 2.0-2.3 times as long as that of metazoan in both sexes. Prosternal spine long conical, straight, apex obtuse. Mesosternal interspace about 2.2-2.6 (♂) or 1.2-1.6 (♀) times longer than minimum width; mesosteral lobes 1.0-1.1 (♂) or 1.2-1.3 (♀) times wider than long; metasternal lobes contiguous (♂) or separate (♀). Tegmina narrow scale-like, length 2.8-2.9 (♂) or 2.4-2.8 (♀) times larger than maximum width, reaching at (♀) or surpassing beyond (♂) posterior margin of 1st abdominal tergite. Hind femur with upper carina smooth, terminating in an acute angle; apex of lower knee lobes spinous. Hind tibia with apical half nearly cylindrical, with 7 external and 9 internal spines on dorsal side; external apical spine present. Abdomen with median keel. Tympana opening distinct, oval.

Table 1. Comparison among *C. yini* **sp. nov.,** *C. dehongensis* **Mao, Xu et Yang, 2003 and** *C. dentata* **sp. nov.**

C. yini Mao *et* Ren, sp. nov.	*C. dehongensis* Mao, Xu *et* Yang, 2003	*C. dentata* Mao *et* Ou, sp. nov.
Male supra anal plate scutated	Male supra anal plate long scutated	Male supra anal plate nearly quadrate
Male cerci long conical	Male cerci long conical	Male cerci short conical
Epiphallus with bridge partly divided in middle; anterior projections with posterior sides nearly straight in lateral view; outer lophi nearly oblong with apex acute in lateral view	Epiphallus with bridge distinctly divided in middle; anterior projections with posterior sides rounded in lateral view; outer lophi nearly oblong with apex obtuse in lateral view	Epiphallus with bridge somewhat divided in middle; anterior projections with posterior sides nearly rounded in lateral view; outer lophi nearly trapezoidal with apex obtuse in lateral view
Phallic complex with apical penis valves expanded; cingular valves divided apically	Phallic complex with apical penis valves expanded; cingular valves divided apically	Phallic complex with apical penis valves remarkably expanded; cingular valves apically fused.
Female subgenital plate with posterior margin undulated	Female subgenital plate with posterior margin nearly straight, weakly incurved in the middle	Female subgenital plate with posterior margin rounded, concave in the middle
Hind femora with a broad orange ring before knee	Hind femora without any color ring before knee	Hind femora with a yellow ring before knee

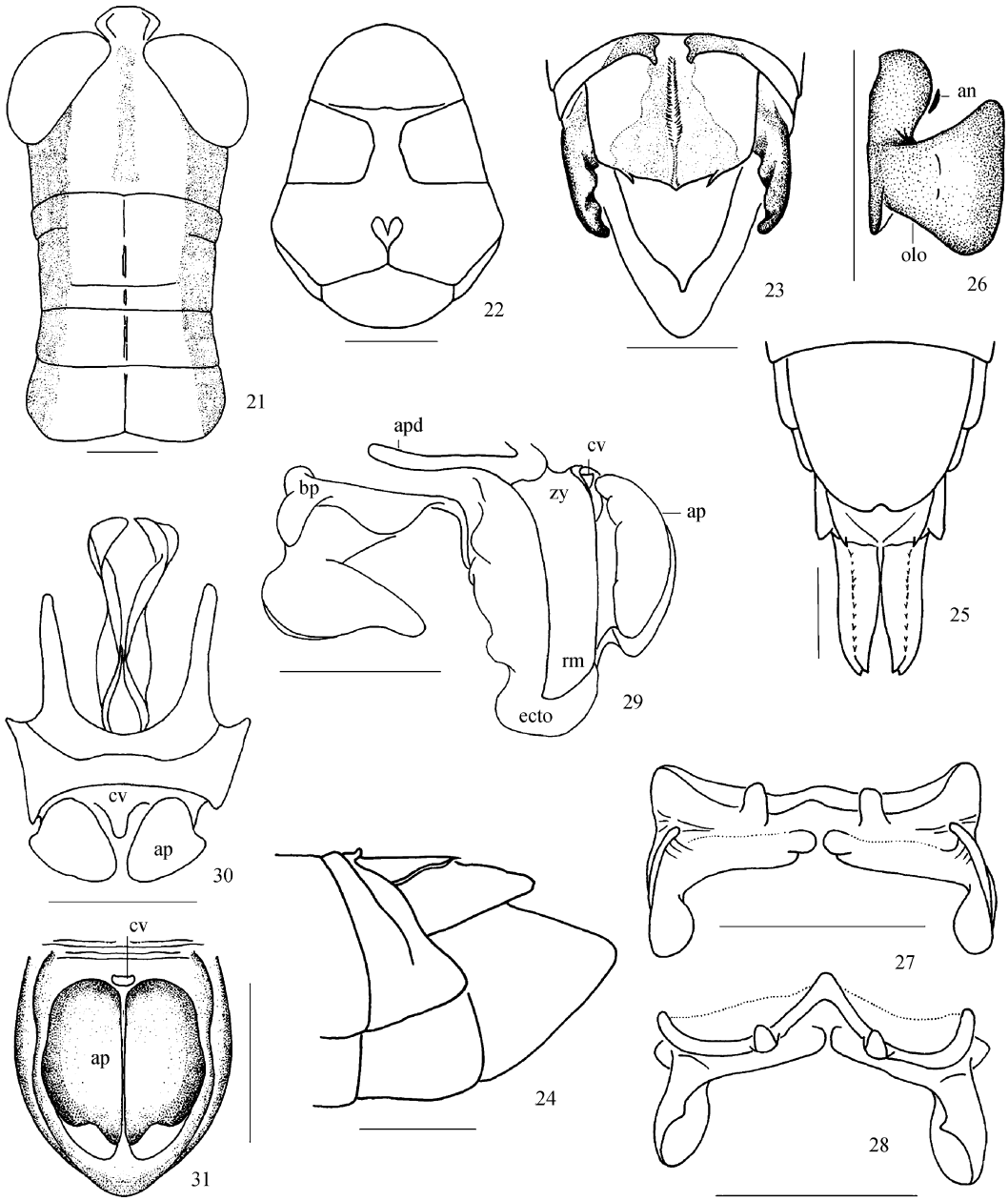
Male 10th abdominal tergite broadly excised in middle, posterior margin with small furculae. Supra anal plate nearly quadrate, with a median longitudinal sulcus from base to apex, sulcus in basal two thirds wider than that in apical third; median area a little raised; lateral margins almost parallel; posterior margin nearly straight with two spine-like processes in lateral sides, obtuse angular in middle. Cerci short conical, somewhat laterally compressed, incurved; apex obtuse, strongly surpassing apex of supra anal plate; inner sides with 3-4 obtuse dentiform processes. Subgenital plate short conical, apex blunt (Figs. 23-24). Epiphallus with nearly trapezoidal, stout outer lophi projecting in a 90° angle from bridge and rounded inner lophi; anchorae compressed with apex obtuse; anterior projections rounded; lateral plate nearly straight; bridge somewhat divided in middle. Phallic complex with basal valves of penis narrow, connected with apical penis valves by a curved flexure, apical penis valves remarkably expanded, apex oval; apodemes narrow, lamellate, distinctly shorter than basal penis valves; cingular valves apically fused (Figs. 26-30).

Female subgenital plate with posterior margin rounded, concave in the middle. Valves of ovipositor with dentes along margins (Fig. 25).

Coloration. Frons and frontal ridge yellowish green, with or without some small black spots. Genae yellowish green with an oblique black stroke below eyes. Head green, with or without a black longitudinal band in middle. Antennae yellowish brown, darker towards apex. Eyes brown. Postocular bands black, continued on dorsal area of lateral lobes of pronotum, tegmina and 8th abdominal tergite. Pronotum with disc green; lateral lobes with two yellow maculations, inferior margins black. Tegmina black. Fore and mid legs greenish yellow. Hind femora orange, about basal tenth yellow, with a yellow ring before knee; knee black; hind tibiae blue. Abdominal tergites darkish green (♂) or brown (♀); abdominal sternites yellow. Furculae (♂) and cerci (♂) black; supra anal plate yellow with middle area black (♂).

Length of body: ♂18.2-18.5 mm, ♀20.3-21.5 mm. Length of pronotum: ♂3.3-3.6 mm, ♀4.0-4.3 mm. Length of tegmen: ♂2.7-2.9 mm, ♀3.2-3.3 mm. Length of hind femur: ♂9.8-10.5 mm, ♀12.0-12.3 mm.

Holotype ♂, Yunnan, Lüchun County (23°0′ N, 102°24′ E), 28 July 2004, coll. YANG Guo-Hui (CLDU). Paratypes 1 ♂, 1 ♀, same data as



Figs. 21-31. *Caryanda dentata* Mao *et* Ou, sp. nov. 21. Male head and pronotum, dorsal view. 22. Male mesosternum and metasternum. 23-24. Male terminalia, dorsal, and lateral views. 25. Female abdominal apex venter. 26-28. Epiphallus, lateral, dorsal, and anterior views. 29-31. Phallic complex, lateral, dorsal, and apical views. (an, ancora. ap, apical penis valves. apd, apodeme. bp, basal penis valves. cv, valves of cingulum. ecto, ectophallus. olo, outer lophus. rm, rami of cingulum. zy, zygoma). Scale bars= 1 mm.

holotype; 1 ♂, 2 ♀ ♀, Yunnan, Mengla County (21°24′ N, 101°30′ E), 3 Aug. 2004, coll. MAO Ben-Yong and YANG Zi-Zhong (CLDU).

Etymology. The species name refers to male cercus with dentiform processes on inner side.

Remarks. This new species is similar to *C. dehongensis* Mao, Xu *et* Yang, 2003 and *C. yini* Mao *et* Ren, sp. nov., but differs from the latter two species by the characters listed in Table 1.

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云南卵翅蝗属二新种 (直翅目, 蝗总科)

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摘 要 记述卵翅蝗属 *Caryanda* Stål, 1878 2 新种, 印氏卵翅蝗 *Caryanda yini* Mao *et* Ren, sp. nov. 和尾齿卵翅蝗 *Caryanda dentata* Mao *et* Ou, sp. nov.; 为便于比较补充记述了上述 2 种的近似种德宏卵翅蝗 *Caryanda dehongensis* Mao, Xu *et* Yang, 2003 的雄性外生殖器。模式标本及本文使用的其它标本均保存于大理学院生命科学与化学学院。

关键词 直翅目, 斑腿蝗科, 卵翅蝗属, 新种, 中国.
中图分类号 Q969.265.1

印氏卵翅蝗, 新种 Caryanda yini **Mao** et **Ren, sp. nov.** (图 7~20)

正模 ♂, 云南瑞丽勐秀, 2005-08-03, 徐吉山采; 副模 6 ♂♂, 3 ♀♀, 普海波采, 其余同正模; 4 ♂♂, 云南高黎贡山, 2005-08-07, 毛本勇采。

新种与德宏卵翅蝗 *C. dehongensis* Mao, Xu *et* Yang, 2003 近似, 区别于后者的主要特征是: 1) 雄性肛上板盾形; 2) 阳具基背片桥部分分离, 前突侧观后缘近直, 外冠突侧观近方形, 顶尖; 3) 雌性下生殖板后缘波曲; 4) 后足股节具阔的橙色膝前环。

词源: 种名以我国著名昆虫分类学家印象初院士的姓氏命名, 对他在该领域所做出的杰出贡献表示敬意。

尾齿卵翅蝗, 新种 Caryanda dentata **Mao** et **Ou, sp. nov.** (图 21~31)

正模 ♂, 云南绿春县, 2004-07-28, 杨国辉采; 副模 1 ♂, 1♀, 记录同正模; 1 ♂, 2 ♀♀, 云南勐腊县, 2004-08-03, 毛本勇、杨自忠采。

新种与德宏卵翅蝗 *C. dehongensis* Mao, Xu *et* Yang, 2003 和印氏卵翅蝗 *C. yini* Mao *et* Ren, sp. nov. 近似, 但以下特征可区别于后二者: 1) 雄性肛上板近方形; 2) 雄性尾须短锥形; 3) 阳具基背片桥略分离, 外冠突侧观近梯形, 阳具端瓣显著膨大, 色带瓣顶端融合; 4) 雌性下生殖板后缘圆弧形, 后缘中央凹陷; 5) 后足股节具黄色膝前环。

词源: 种名源自雄性尾须内侧有齿状突起。